

ZXMN6A07Z

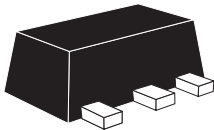
60V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS}=100V$; $R_{DS(ON)}=0.4\Omega$ $I_D=1.9A$

DESCRIPTION

This new generation of TRENCH MOSFETs from Zetex utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.



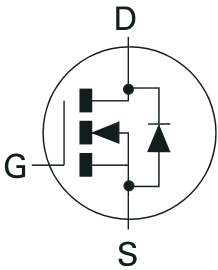
SOT89

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- SOT89 package

APPLICATIONS

- DC - DC Converters
- Power Management Functions
- Relay and solenoid driving
- Motor control

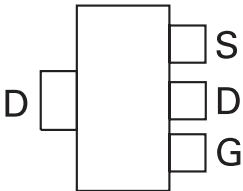


ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN6A07ZTA	7"	12mm	1000 units

DEVICE MARKING

- 7N6



Top View

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ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	60	V
Gate Source Voltage	V_{GS}	± 20	V
Continuous Drain Current $V_{GS}=10V$; $T_A=25^\circ C$ (b) $V_{GS}=10V$; $T_A=70^\circ C$ (b) $V_{GS}=10V$; $T_A=25^\circ C$ (a)	I_D	1.9 1.5 1.4	A
Pulsed Drain Current (c)	I_{DM}	6	A
Continuous Source Current (Body Diode) (b)	I_S	2.4	A
Pulsed Source Current (Body Diode) (c)	I_{SM}	6	A
Power Dissipation at $T_A=25^\circ C$ (a) Linear Derating Factor	P_D	1.5 12	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b) Linear Derating Factor	P_D	2.6 21	W mW/ $^\circ C$
Operating and Storage Temperature Range	$T_j:T_{stg}$	-55 to +150	$^\circ C$

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	83.3	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	47.4	$^\circ C/W$

NOTES

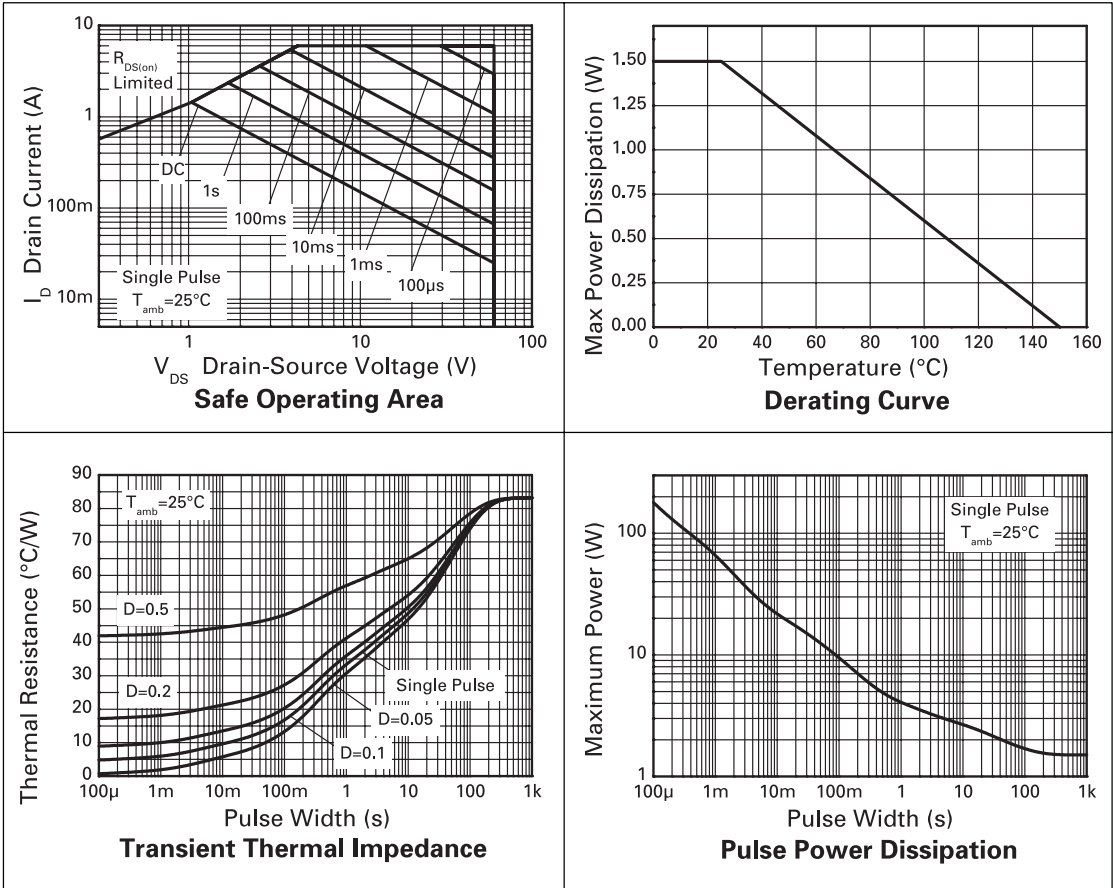
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at $t \leq 10$ secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, D = 0.05, pulse width 10 μs - pulse width limited by maximum junction temperature. Refer to transient Thermal Impedance graph

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CHARACTERISTICS



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ELECTRICAL CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V(BR)DSS	60			V	I _D =250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			1.0	μA	V _{DS} =60V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			60	nA	V _{GS} =±20V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	1.0		3.0	V	I _D =250μA, V _{DS} = V _{GS}
Static Drain-Source On-State Resistance (1)	R _{DS(on)}		0.3	0.40 0.55	Ω Ω	V _{GS} =10V, I _D =1.8A V _{GS} =4.5V, I _D =1.3A
Forward Transconductance (1)(3)	g _{fs}		2.3		S	V _{DS} =15V, I _D =1.8A
DYNAMIC (3)						
Input Capacitance	C _{iss}		166		pF	V _{DS} =40 V, V _{GS} =0V, f=1MHz
Output Capacitance	C _{Oss}		19.5		pF	
Reverse Transfer Capacitance	C _{rss}		8.7		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t _{d(on)}		1.8		ns	V _{DD} =30V, I _D =1.8A R _G =6.0Ω, V _{GS} =10V
Rise Time	t _r		1.4		ns	
Turn-Off Delay Time	t _{d(off)}		4.9		ns	
Fall Time	t _f		2.0		ns	
Gate Charge	Q _g		1.65		nC	V _{DS} = 30V, V _{GS} =5V I _D = 1.8A
Total Gate Charge	Q _g		3.2		nC	V _{DS} =30V, V _{GS} =10V, I _D =1.8A
Gate-Source Charge	Q _{gs}		0.67		nC	
Gate-Drain Charge	Q _{gd}		0.82		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}		0.85	0.95	V	T _J =25°C, I _S =1.5A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		20.5		ns	T _J =25°C, I _F =1.0A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Q _{rr}		21.3		nC	

NOTES

(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

(2) Switching characteristics are independent of operating junction temperature.

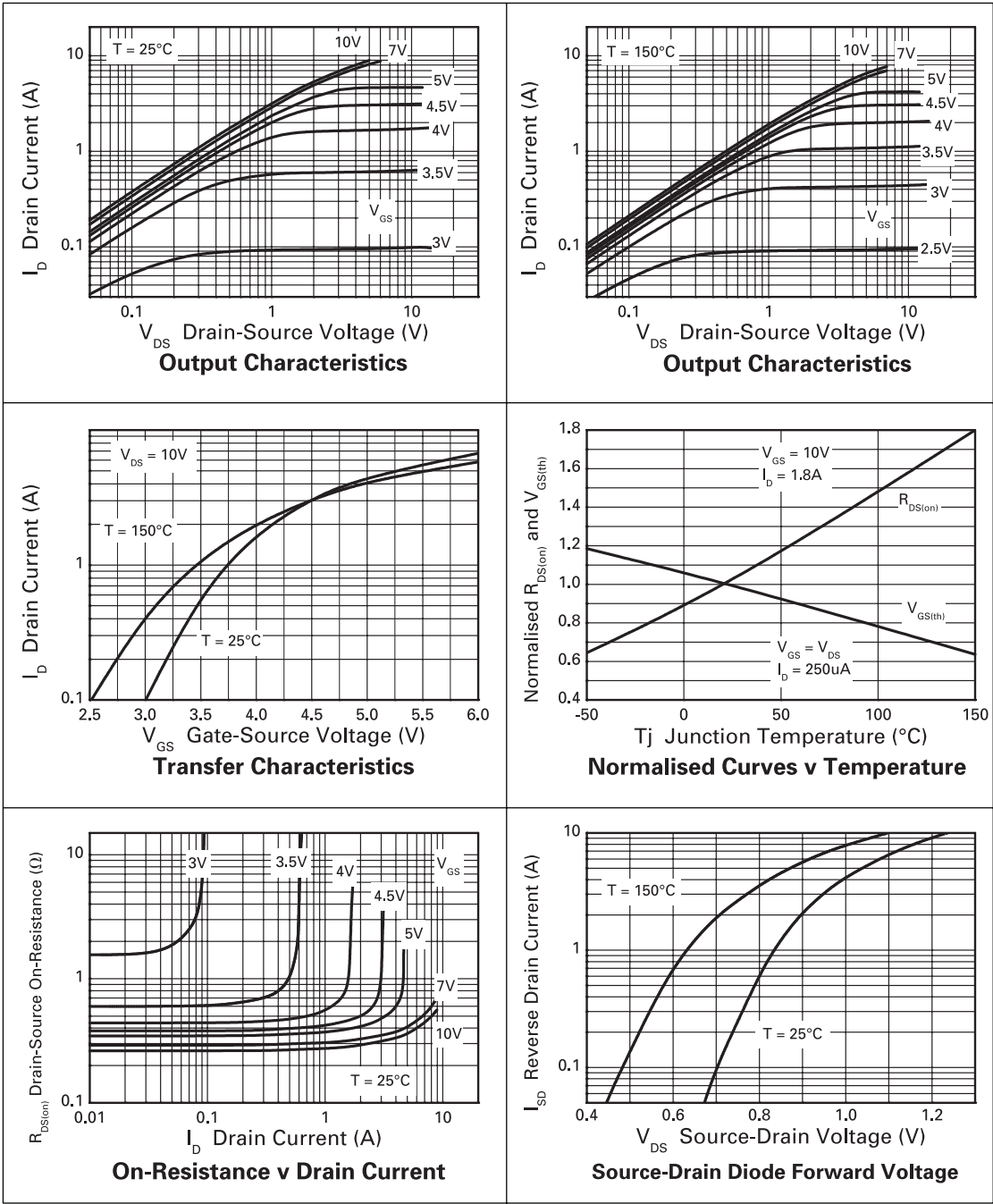
(3) For design aid only, not subject to production testing.



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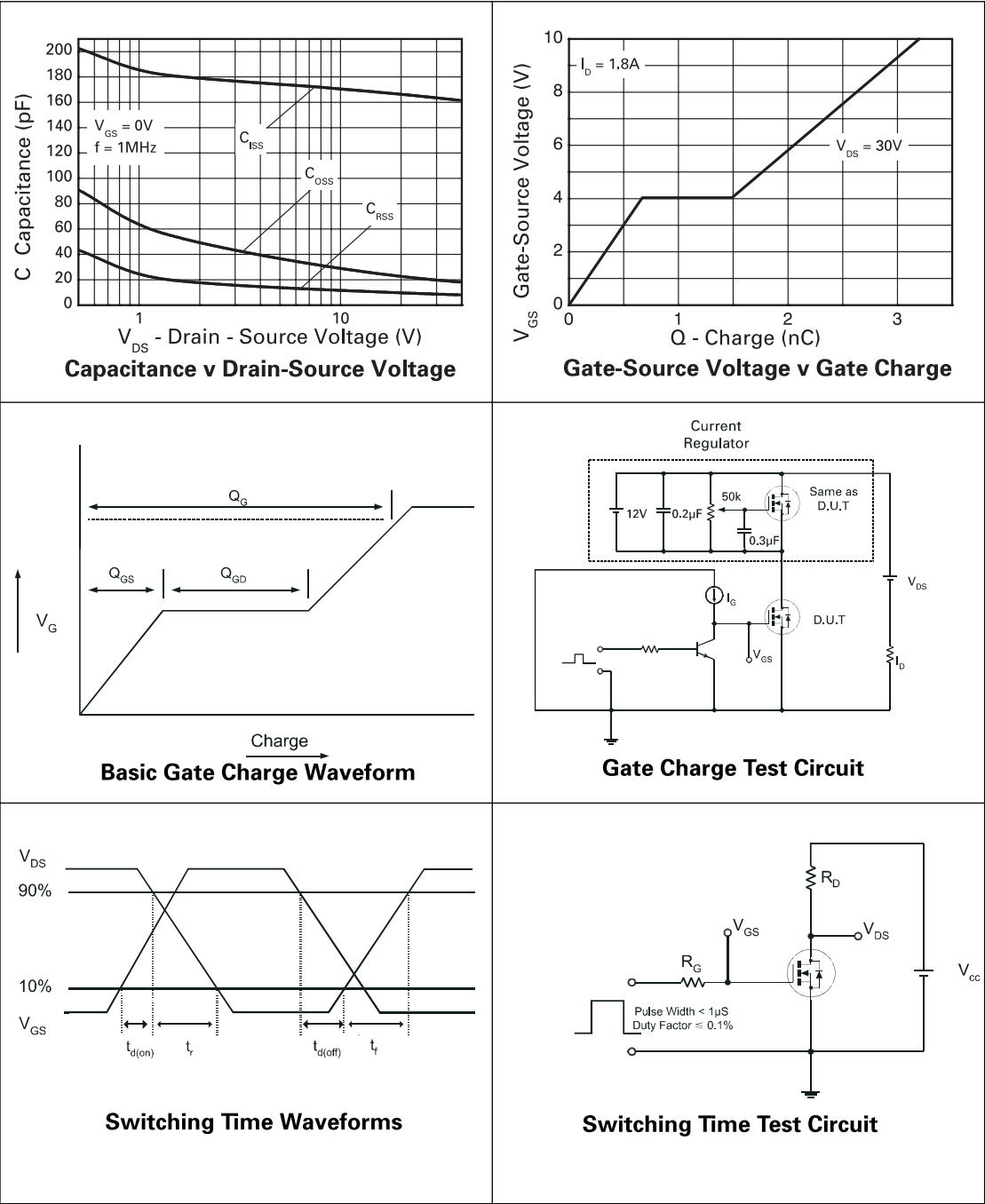
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TYPICAL CHARACTERISTICS



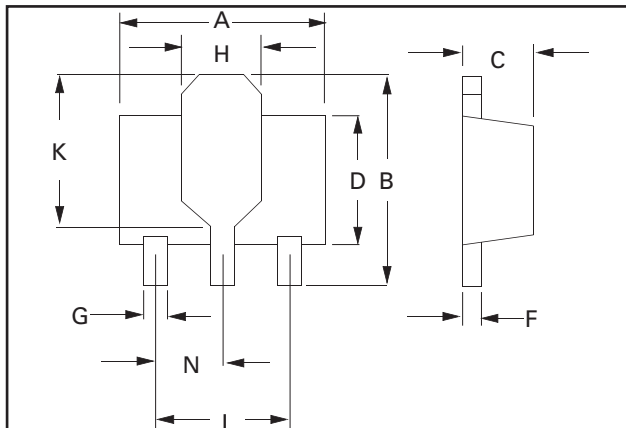
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TYPICAL CHARACTERISTICS

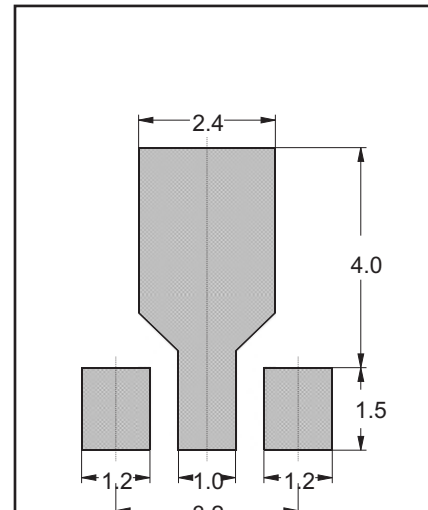


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PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	–	1.10	–	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985
N	NOM 0.95		NOM 0.037	

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